This study began with univariate analysis and then moved to bivariate analysis. The basic question asked about a relationship between two variables is whether that relationship is statistically significant. Most of the variables in this study were dichotomous, meaning that they have two categories only. One example is the variable 'legal status', which has two categories, at-risk and court-involved. The χ^2 (Greek letter "chi," chi-square) test is the most commonly used statistical test of significance for dichotomous variables, which account for all but a few of the variables in this study. A few variables in the study were continuous, meaning that their values did not fall into distinct categories and may appear as fractions. The variables 'age' and 'days of service' are examples. For these variables, the difference of means test was used. The significance level of this analysis was assessed using the F-test. Both the F-test and the χ^2 test have the same interpretation of statistical significance.

Statistical significance indicates only that any relationship between two variables was not likely to have occurred by chance. The nature of the tests used here (F and χ^2) are such that in large samples, all relationships between two variables may be statistically significant.[54] In statistical analysis, the JCPC sample is considered to be a very large sample.

Once statistical significance is established, measures of association are calculated to reveal the strength and direction of the significant relationship. The measure used here to assess the strength of an association of a significant χ^2 test is the ϕ (Greek letter "phi") coefficient; for the F-test, it is Pearson's r correlation. Both measures range from –1 to +1. A value of zero indicates no relationship (correlation) between the two variables. A value of ±1 indicates a perfect relationship.[55] A ϕ or r value of ± .30 and below is considered a weak association and is not of substantive importance. A value of ± .50 to ± .70 is considered a moderately strong association and may have substantive importance. A value of above ± .70 is considered a strong association and is likely to be of substantive importance.[56] As expected in a sample of the size of the JCPC sample, all of the relationships between recidivism and any of the independent variables were statistically significant. All bivariate measures of association (ϕ or r) between recidivism and any independent variable were much smaller than ± .30. In fact, very few were larger than ± .10. This result indicates that none of the independent variables examined in this report should be interpreted as having a substantively or statistically meaningful relationship to the dependent variable, recidivism. Although the report discusses recidivism in terms of differences between values of independent variables, this information is descriptive only and not intended to imply significance. In other words, inferences about program effectiveness should not be drawn from the analyses presented in this report.

Additional Recidivism Analyses

<u>Analysis of Time to Recidivism</u>

Chapter Three includes a brief discussion of survival analysis and presents the survival distribution of recidivism by legal status (Figure 3.3). Additional analysis calculated the hazard,

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[54] The JCPC study used the standard p < .05 level of significance. Using this level, a significant relationship means that there is less than a 5% chance that the relationship occurred by chance.

[55] A +1 indicates a perfect positive relationship; a -1 indicates a perfect negative relationship.

[56] Sheskin, David J. 1997. *Handbook of Parametric and Nonparametric Statistical Procedures*. Boca Raton, FL: CRC Press.